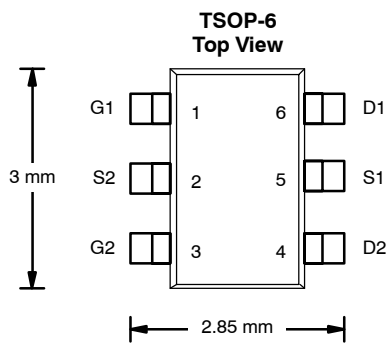


## N- and P-Channel 30-V (D-S) MOSFET

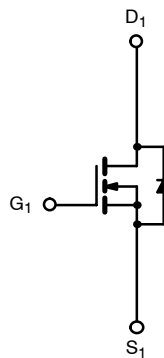
PRODUCT SUMMARY			
	$V_{DS}$ (V)	$r_{DS(on)}$ ( $\Omega$ )	$I_D$ (A)
N-Channel	30	0.105 @ $V_{GS} = 10$ V	2.5
		0.175 @ $V_{GS} = 4.5$ V	2.0
P-Channel	-30	0.200 @ $V_{GS} = -10$ V	-1.8
		0.360 @ $V_{GS} = -4.5$ V	-1.2

### FEATURES

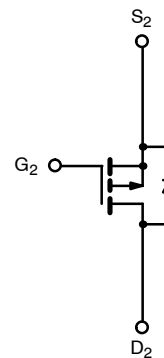
- TrenchFET® Power MOSFET
- 100%  $R_g$  Tested



Ordering Information: Si3552DV-T1



N-Channel MOSFET



P-Channel MOSFET

ABSOLUTE MAXIMUM RATINGS ( $T_A = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)					
Parameter	Symbol	N-Channel	P-Channel	Unit	
Drain-Source Voltage	$V_{DS}$	30	-30	V	
Gate-Source Voltage	$V_{GS}$	$\pm 20$	$\pm 20$		
Continuous Drain Current ( $T_J = 150^\circ\text{C}$ ) <sup>a, b</sup>	$I_D$	$T_A = 25^\circ\text{C}$	2.5	-1.8	A
		$T_A = 70^\circ\text{C}$	2.0	-1.2	
Pulsed Drain Current	$I_{DM}$	8	-7		
Continuous Source Current (Diode Conduction) <sup>a, b</sup>	$I_S$	1.05	-1.05		
Maximum Power Dissipation <sup>a, b</sup>	$P_D$	$T_A = 25^\circ\text{C}$	1.15		W
		$T_A = 70^\circ\text{C}$	0.73		
Operating Junction and Storage Temperature Range	$T_J, T_{stg}$	-55 to 150		$^\circ\text{C}$	

THERMAL RESISTANCE RATINGS					
Parameter	Symbol	Typical	Maximum	Unit	
Maximum Junction-to-Ambient <sup>a</sup>	$R_{thJA}$	$t \leq 5$ sec	93	110	$^\circ\text{C/W}$
		Steady State	130	150	
Maximum Junction-to-Lead	$R_{thJL}$	75	90		

**Notes**

- a. Surface Mounted on FR4 Board.  
b.  $t \leq 5$  sec

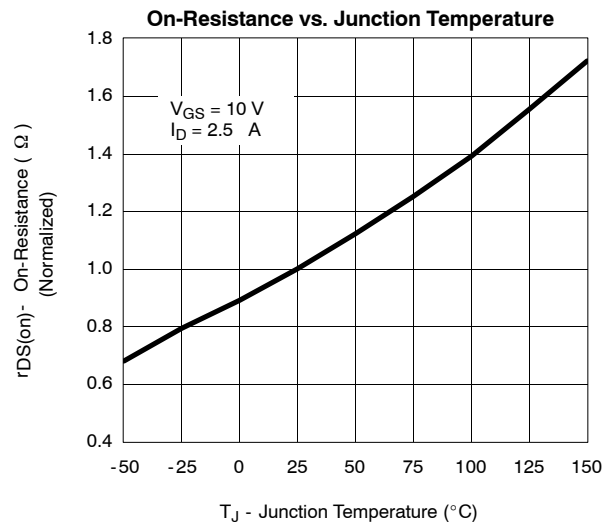
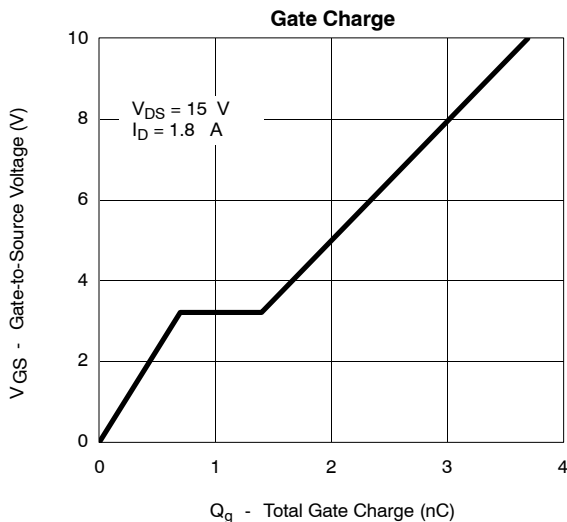
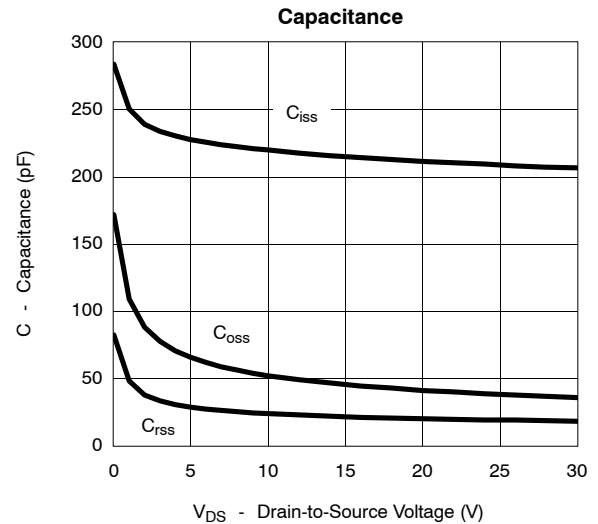
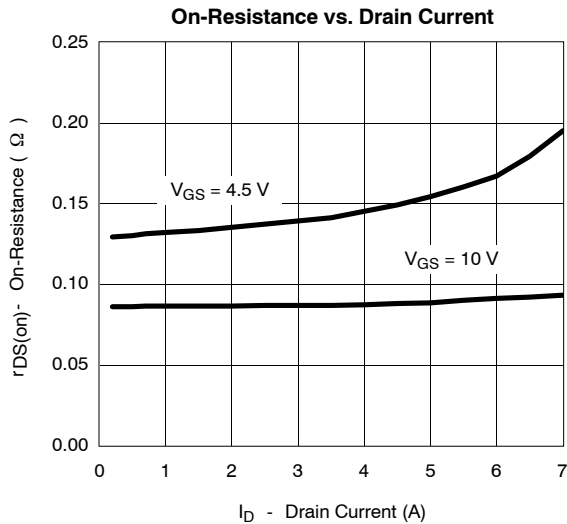
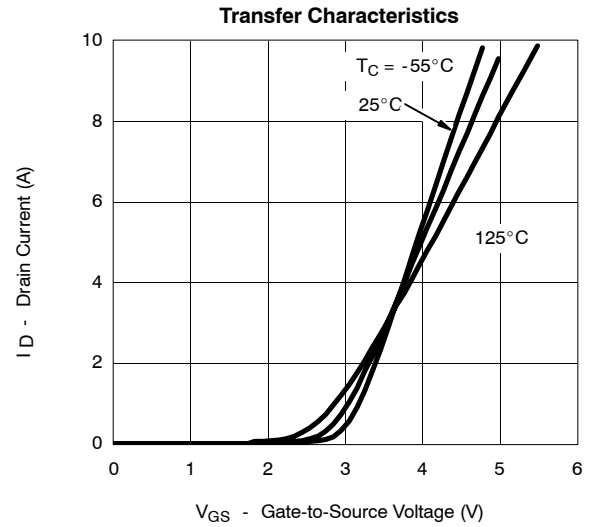
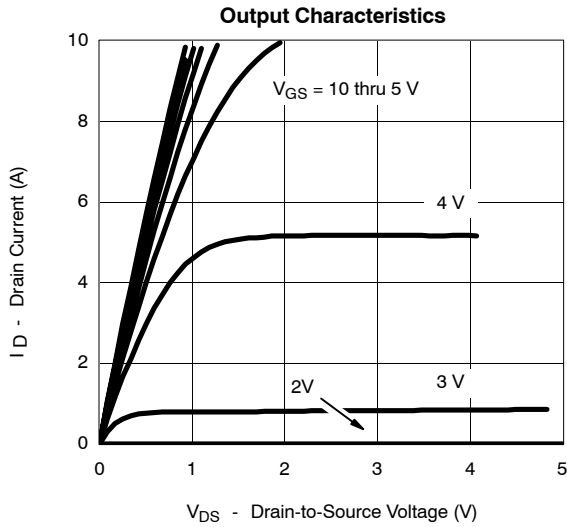
SPECIFICATIONS (T <sub>J</sub> = 25 °C UNLESS OTHERWISE NOTED)							
Parameter	Symbol	Test Condition		Min	Typ	Max	Unit
<b>Static</b>							
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = 250 μA	N-Ch	1.0			V
		V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = -250 μA	P-Ch	-1.0			
Gate-Body Leakage	I <sub>GSS</sub>	V <sub>DS</sub> = 0 V, V <sub>GS</sub> = ±20 V	N-Ch			±100	nA
			P-Ch			±100	
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> = 24 V, V <sub>GS</sub> = 0 V	N-Ch			1	μA
		V <sub>DS</sub> = -24 V, V <sub>GS</sub> = 0 V	P-Ch			-1	
		V <sub>DS</sub> = 24 V, V <sub>GS</sub> = 0 V, T <sub>J</sub> = 55 °C	N-Ch			5	
		V <sub>DS</sub> = -24 V, V <sub>GS</sub> = 0 V, T <sub>J</sub> = 55 °C	P-Ch			-5	
On-State Drain Current <sup>a</sup>	I <sub>D(on)</sub>	V <sub>DS</sub> = 5 V, V <sub>GS</sub> = 10 V	N-Ch	5			A
		V <sub>DS</sub> = -5 V, V <sub>GS</sub> = -10 V	P-Ch	-5			
Drain-Source On-State Resistance <sup>a</sup>	r <sub>DS(on)</sub>	V <sub>GS</sub> = 10 V, I <sub>D</sub> = 2.5 A	N-Ch		0.085	0.105	Ω
		V <sub>GS</sub> = -10 V, I <sub>D</sub> = -1.8 A	P-Ch		0.165	0.200	
		V <sub>GS</sub> = 4.5 V, I <sub>D</sub> = 2.0 A	N-Ch		0.140	0.175	
		V <sub>GS</sub> = -4.5 V, I <sub>D</sub> = -1.2 A	P-Ch		0.298	0.360	
Forward Transconductance <sup>a</sup>	g <sub>fs</sub>	V <sub>DS</sub> = 10 V, I <sub>D</sub> = 2.5 A	N-Ch		4.3		S
		V <sub>DS</sub> = -15 V, I <sub>D</sub> = -1.8 A	P-Ch		2.4		
Diode Forward Voltage <sup>a</sup>	V <sub>SD</sub>	I <sub>S</sub> = 1.05 A, V <sub>GS</sub> = 0 V	N-Ch		0.81	1.10	V
		I <sub>S</sub> = -1.05 A, V <sub>GS</sub> = 0 V	P-Ch		-0.83	-1.10	
<b>Dynamic<sup>b</sup></b>							
Total Gate Charge	Q <sub>g</sub>	N-Channel V <sub>DS</sub> = 15 V, V <sub>GS</sub> = 5 V, I <sub>D</sub> = 1.8 A  P-Channel V <sub>DS</sub> = -15 V, V <sub>GS</sub> = -5 V, I <sub>D</sub> = -1.8 A	N-Ch		2.1	3.2	nC
			P-Ch		2.4	3.6	
Gate-Source Charge	Q <sub>gs</sub>		N-Ch		0.7		
			P-Ch		0.9		
Gate-Drain Charge	Q <sub>gd</sub>		N-Ch		0.7		
			P-Ch		0.8		
Gate Resistance	R <sub>g</sub>		N-Ch	0.5		2.4	Ω
			P-Ch	3		11	
Turn-On Delay Time	t <sub>d(on)</sub>		N-Ch		7	11	ns
			P-Ch		8	12	
Rise Time	t <sub>r</sub>	N-Channel V <sub>DD</sub> = 15 V, R <sub>L</sub> = 15 Ω I <sub>D</sub> ≅ 1 A, V <sub>GEN</sub> = 10 V, R <sub>G</sub> = 6 Ω	N-Ch		9	14	
			P-Ch		12	18	
Turn-Off Delay Time	t <sub>d(off)</sub>	P-Channel V <sub>DD</sub> = -15 V, R <sub>L</sub> = 15 Ω I <sub>D</sub> ≅ -1 A, V <sub>GEN</sub> = -10 V, R <sub>G</sub> = 6 Ω	N-Ch		13	20	
			P-Ch		12	18	
Fall Time	t <sub>f</sub>		N-Ch		5	8	
			P-Ch		7	11	
Source-Drain Reverse Recovery Time	t <sub>rr</sub>	I <sub>F</sub> = 1.05 A, di/dt = 100 A/μs	N-Ch		35	60	
		I <sub>F</sub> = -1.05 A, di/dt = 100 A/μs	P-Ch		30	60	

## Notes

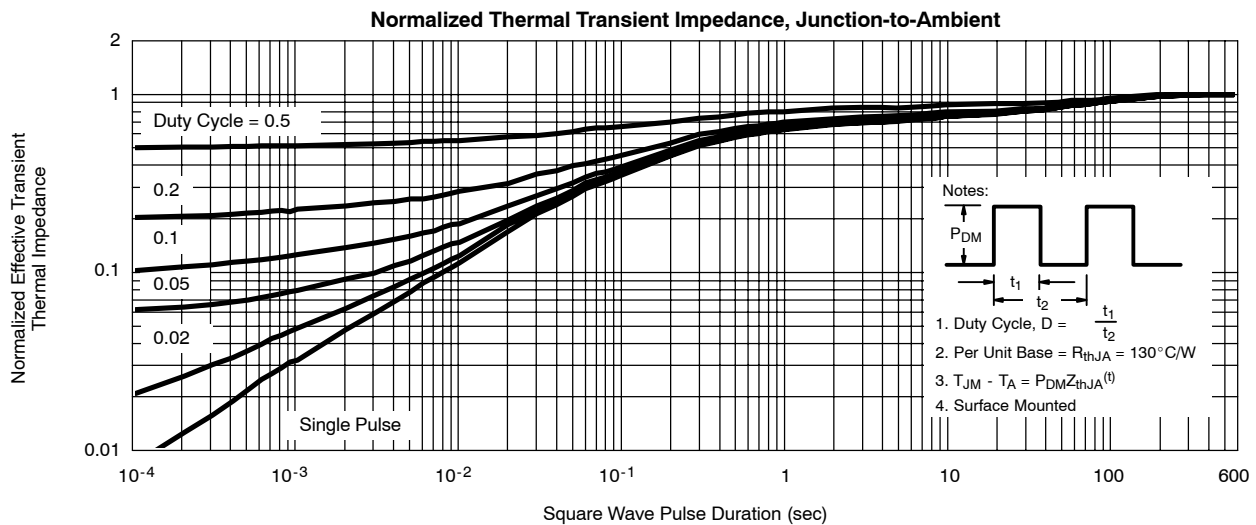
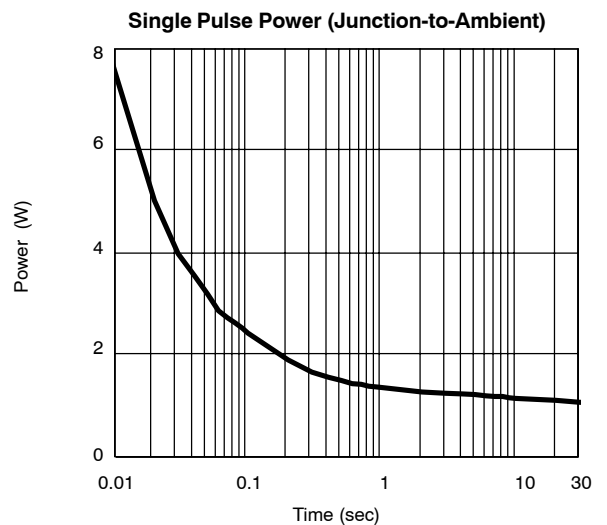
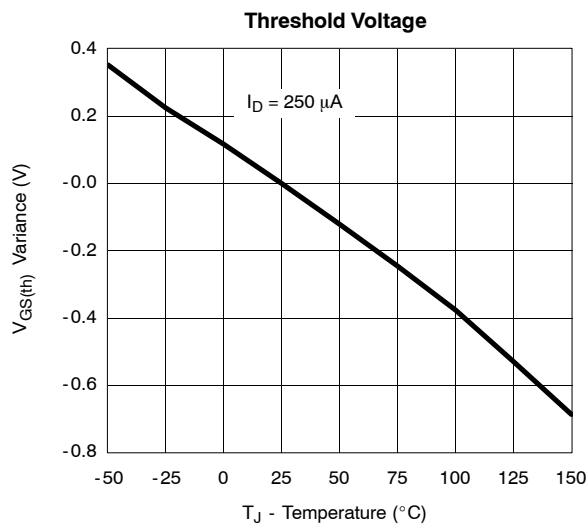
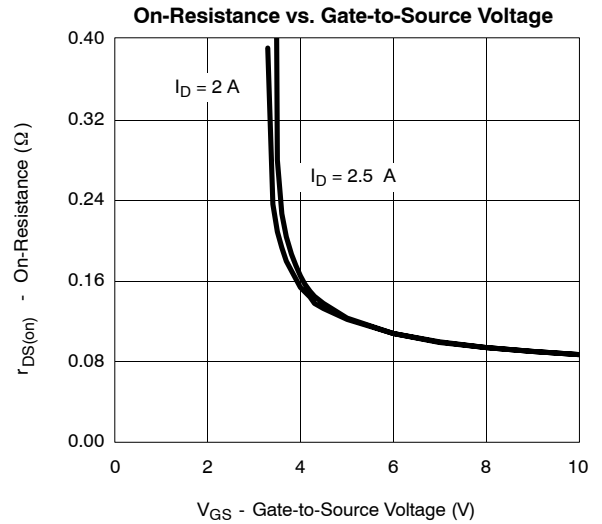
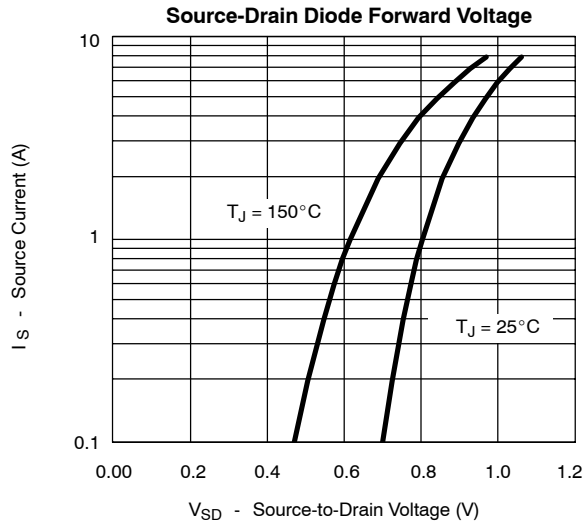
- a. Pulse test; pulse width ≤ 300 μs, duty cycle ≤ 2%.  
 b. Guaranteed by design, not subject to production testing.

**TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)**

**NCHANNEL**



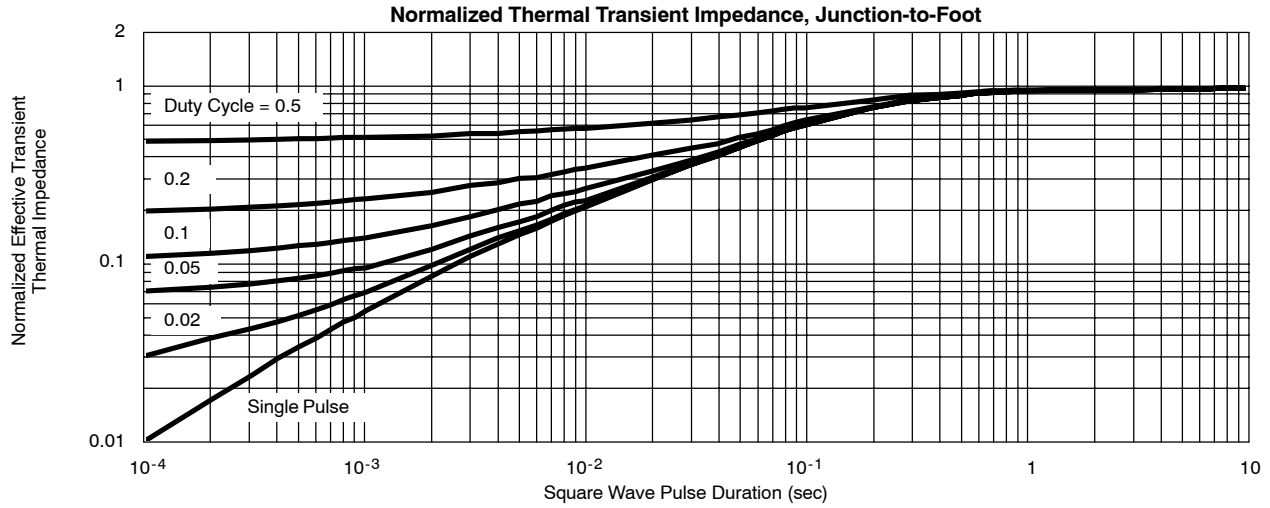
**TYPICAL CHARACTERISTICS (25°C UNLESS NOTED) NCHANNEL**





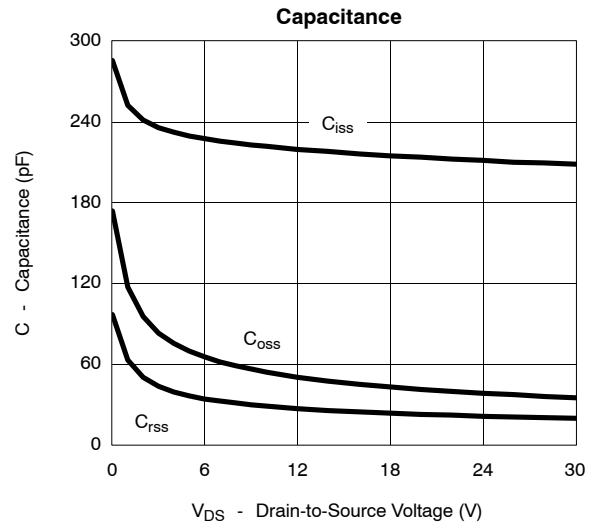
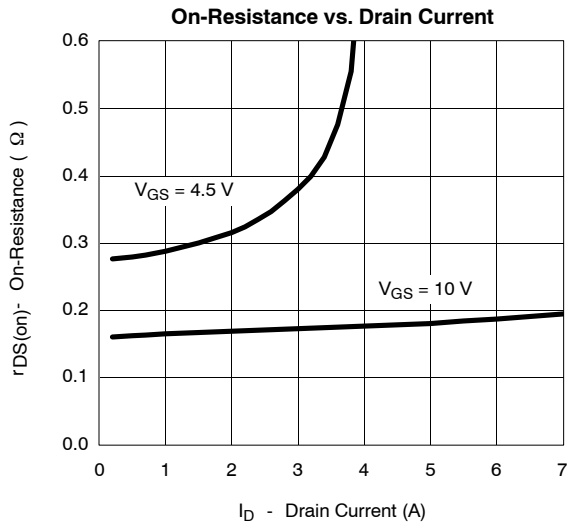
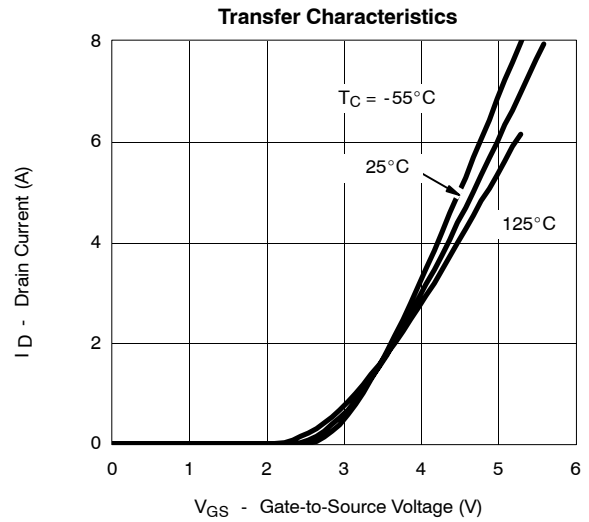
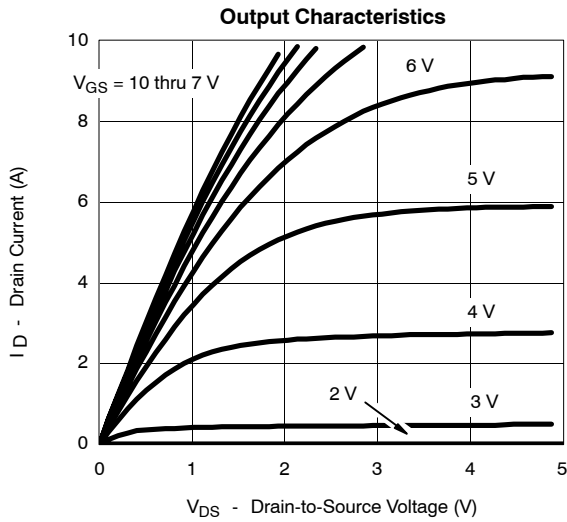
**TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED)**

**NCHANNEL**

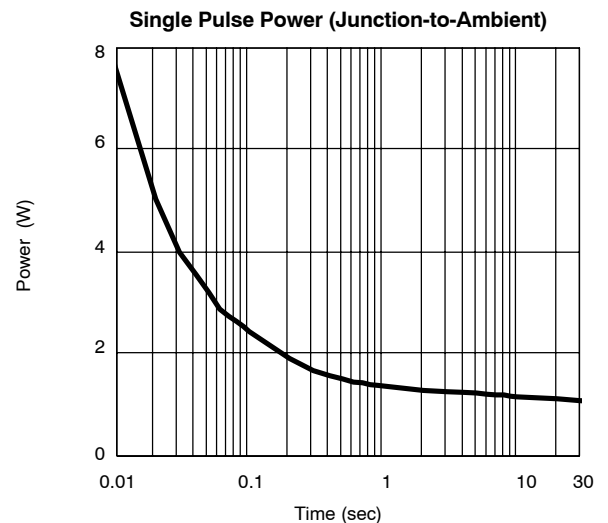
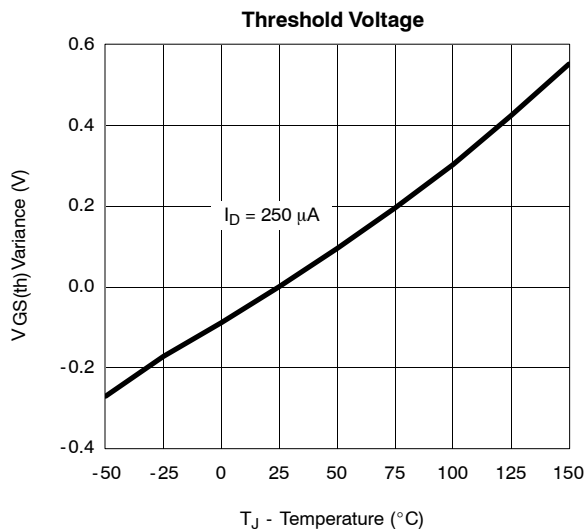
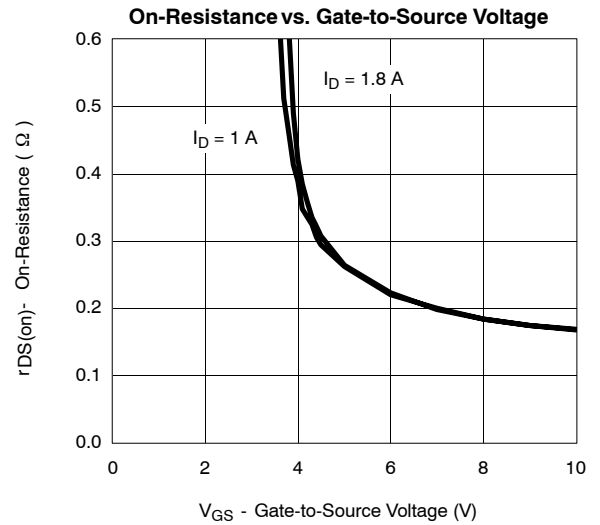
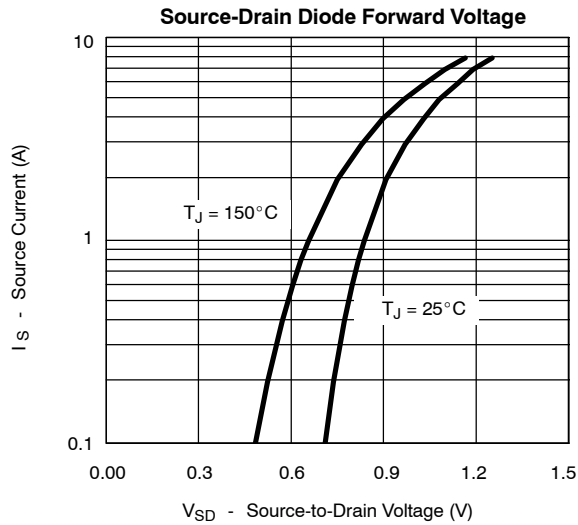
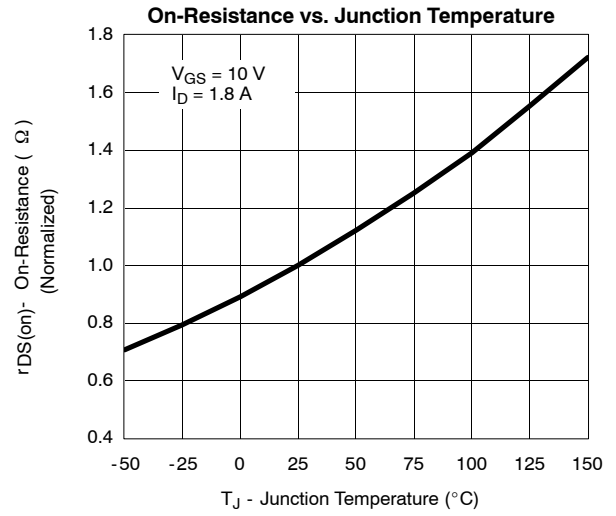
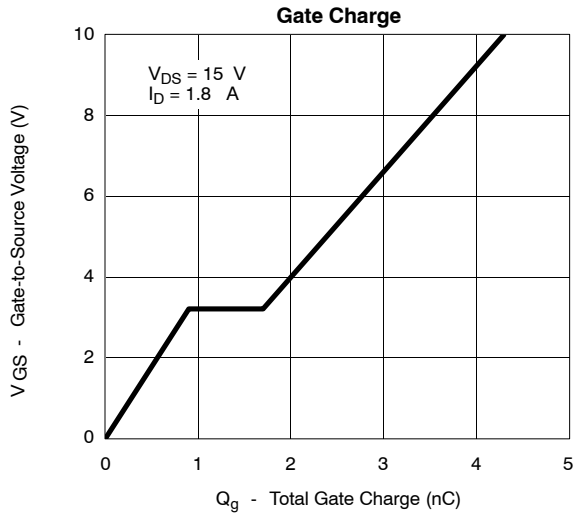


**TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED)**

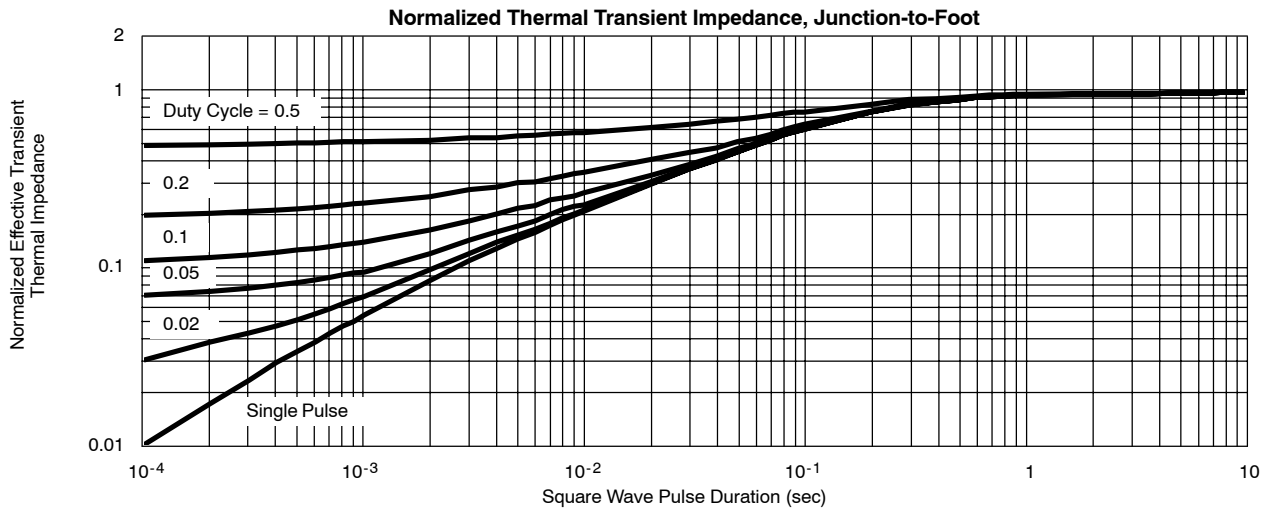
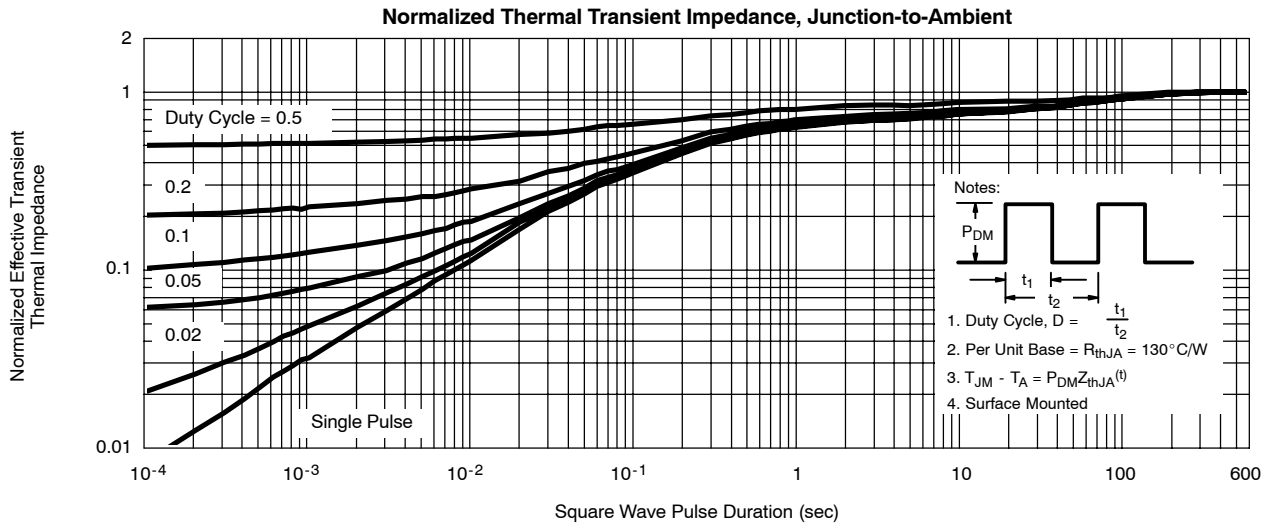
**PCHANNEL**



**TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED) PCHANNEL**



**TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED) PCHANNEL**





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