

Maximum Ratings @T_A = 25°C unless otherwise specified

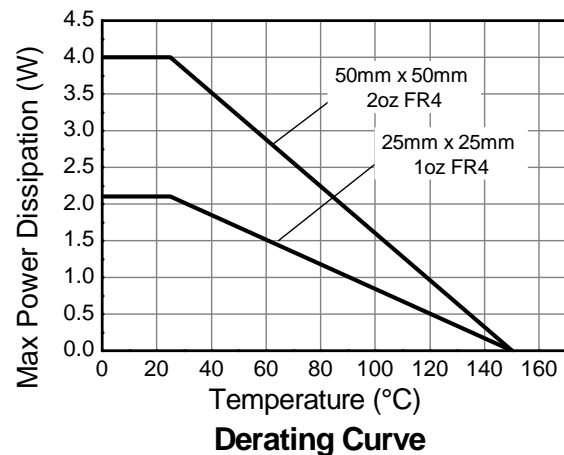
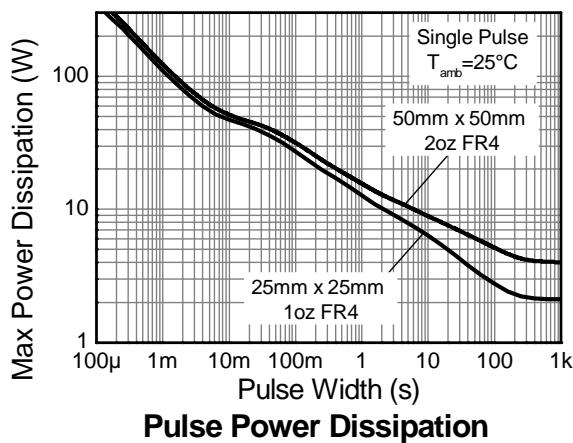
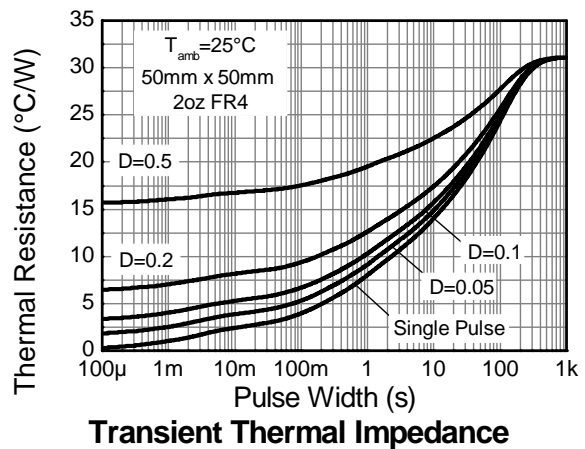
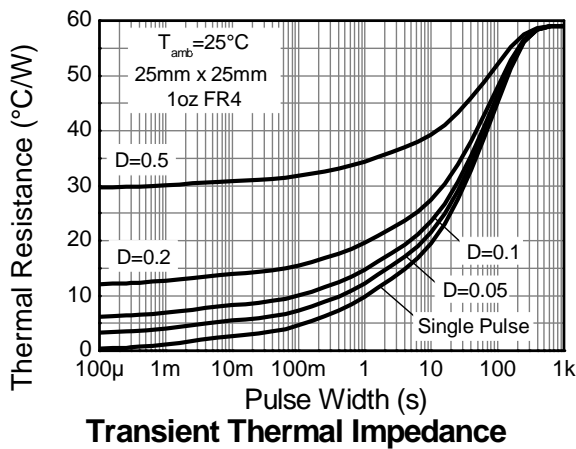
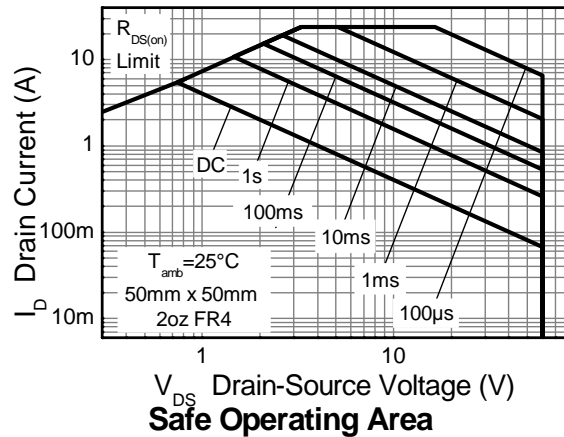
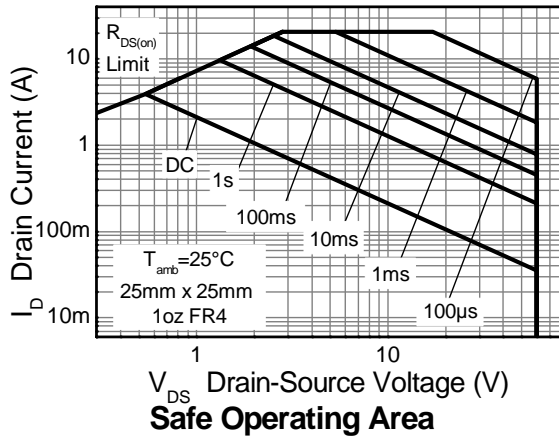
Characteristic		Symbol	Value	Unit	
Drain-Source voltage		V _{DSS}	60	V	
Gate-Source voltage		V _{GS}	±20	V	
Continuous Drain current	V _{GS} = 10V	(Note 3)	7.90	A	
		T _A =70°C (Note 3)	6.30		
		(Note 2)	5.36		
Pulsed Drain current	V _{GS} = 10V	(Note 4)	I _{DM}	24.3	A
Continuous Source current (Body diode)		(Note 3)	I _S	9.0	A
Pulsed Source current (Body diode)		(Note 4)	I _{SM}	24.3	A

Thermal Characteristics @T_A = 25°C unless otherwise specified

Characteristic		Symbol	Value	Unit
Power dissipation Linear derating factor	(Note 2)	P _D	4.13	W mW/°C
			33.0	
	(Note 3)		8.94	
			71.5	
Thermal Resistance, Junction to Ambient	(Note 5)	R _{θJA}	2.12	°C/W
			16.9	
	(Note 2)		30.3	
	(Note 3)		14.0	
Thermal Resistance, Junction to Lead	(Note 5)	R _{θJL}	59.1	°C/W
	(Note 6)		2.77	
Operating and storage temperature range		T _J , T _{STG}	-55 to 150	°C

- Notes:
2. For a device surface mounted on 50mm x 50mm x 1.6mm FR4 PCB with high coverage of single sided 2oz copper, in still air conditions; the device is measured when operating in a steady-state condition.
 3. Same as note 2, except the device is measured at t ≤ 10 sec.
 4. Same as note 2, except the device is pulsed with D = 0.02 and pulse width 300 μs. The pulse current is limited by the maximum junction temperature.
 5. For a device surface mounted on 25mm x 25mm x 1.6mm FR4 PCB with high coverage of single sided 1oz copper, in still air conditions; the device is measured when operating in a steady-state condition.
 6. Thermal resistance from junction to solder-point (at the end of the drain lead).

Thermal Characteristics

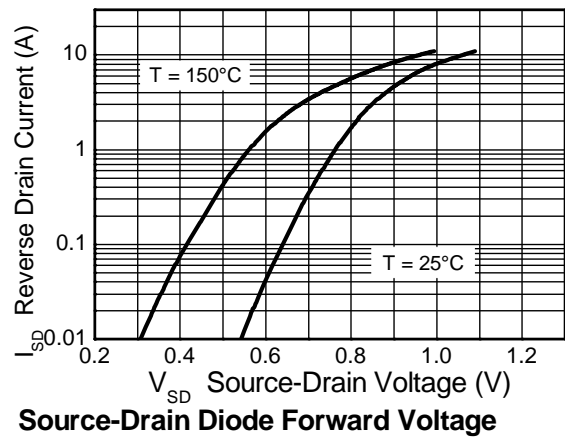
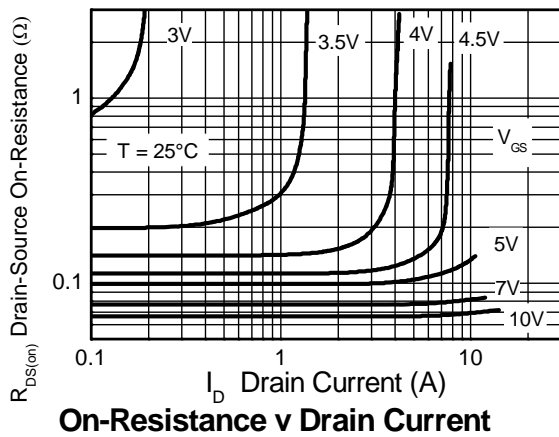
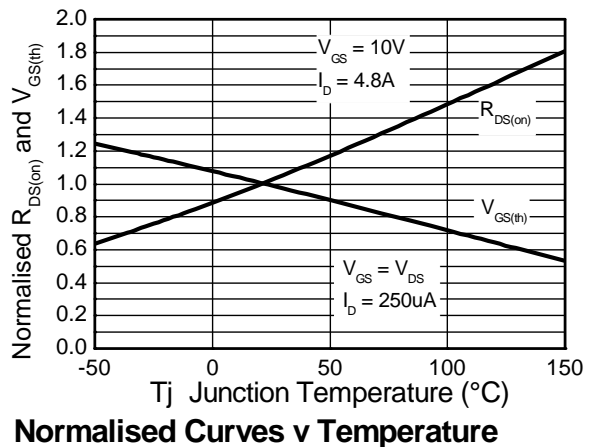
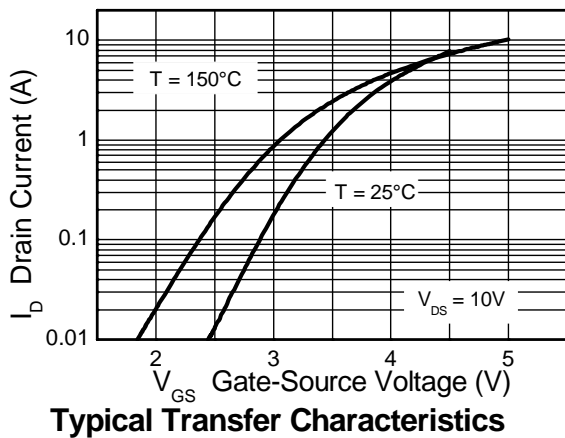
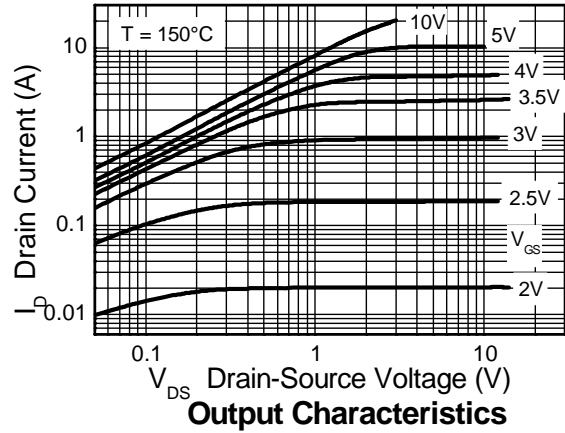
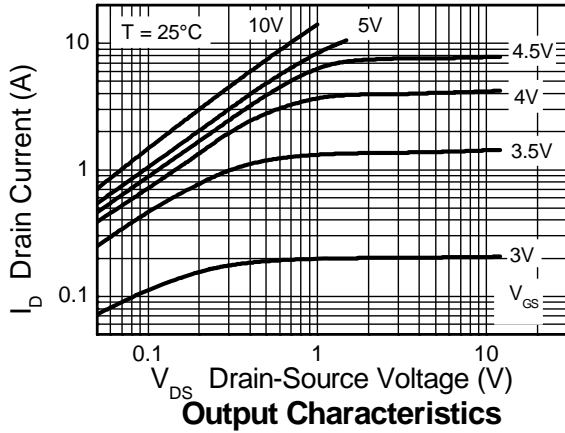


Electrical Characteristics @ $T_A = 25^\circ\text{C}$ unless otherwise specified

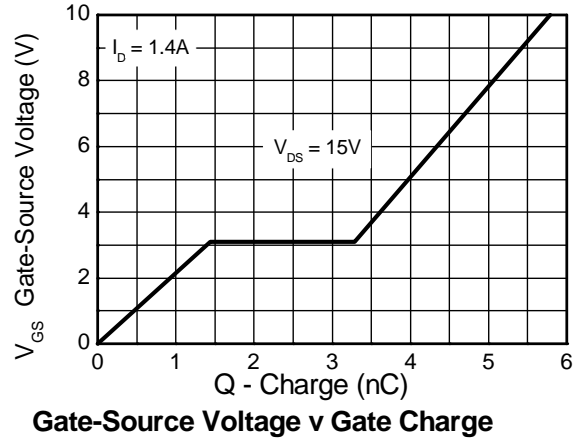
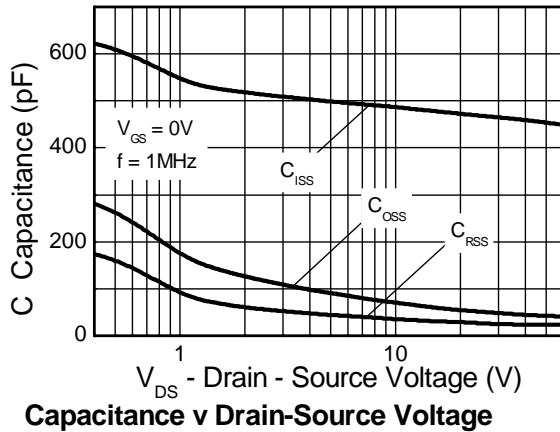
Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV_{DSS}	60	—	—	V	$I_D = 250\mu\text{A}, V_{GS} = 0\text{V}$
Zero Gate Voltage Drain Current	I_{DSS}	—	—	0.5	μA	$V_{DS} = 60\text{V}, V_{GS} = 0\text{V}$
Gate-Source Leakage	I_{GSS}	—	—	± 100	nA	$V_{GS} = \pm 20\text{V}, V_{DS} = 0\text{V}$
ON CHARACTERISTICS						
Gate Threshold Voltage	$V_{GS(th)}$	1.0	—	3.0	V	$I_D = 250\mu\text{A}, V_{DS} = V_{GS}$
Static Drain-Source On-Resistance (Note 7)	$R_{DS(on)}$	—	—	0.080	Ω	$V_{GS} = 10\text{V}, I_D = 4.8\text{A}$
				0.150		$V_{GS} = 4.5\text{V}, I_D = 4.2\text{A}$
Forward Transconductance (Notes 7 & 8)	g_{fs}	—	6.6	—	S	$V_{DS} = 15\text{V}, I_D = 4.8\text{A}$
Diode Forward Voltage (Note 7)	V_{SD}	—	0.88	0.95	V	$I_S = 4.0\text{A}, V_{GS} = 0\text{V}$
Reverse recovery time (Note 8)	t_{rr}	—	19.2	—	ns	$I_S = 1.4\text{A}, di/dt = 100\text{A}/\mu\text{s}$
Reverse recovery charge (Note 8)	Q_{rr}	—	30.3	—	nC	
DYNAMIC CHARACTERISTICS (Note 8)						
Input Capacitance	C_{iss}	—	459	—	pF	$V_{DS} = 40\text{V}, V_{GS} = 0\text{V}$ $f = 1\text{MHz}$
Output Capacitance	C_{oss}	—	44.2	—	pF	
Reverse Transfer Capacitance	C_{rss}	—	24.1	—	pF	
Total Gate Charge	Q_g	—	3.8	—	nC	$V_{GS} = 4.5\text{V}$
Total Gate Charge	Q_g	—	5.8	—	nC	$V_{GS} = 10\text{V}$
Gate-Source Charge	Q_{gs}	—	1.4	—	nC	
Gate-Drain Charge	Q_{gd}	—	1.9	—	nC	
Turn-On Delay Time (Note 9)	$t_{D(on)}$	—	2.6	—	ns	$V_{DD} = 30\text{V}, V_{GS} = 10\text{V}$ $I_D = 1.5\text{A}, R_G \cong 6.0\Omega$
Turn-On Rise Time (Note 9)	t_r	—	2.1	—	ns	
Turn-Off Delay Time (Note 9)	$t_{D(off)}$	—	12.3	—	ns	
Turn-Off Fall Time (Note 9)	t_f	—	4.6	—	ns	

- Notes:
7. Measured under pulsed conditions. Pulse width $\leq 300\mu\text{s}$; duty cycle $\leq 2\%$
 8. For design aid only, not subject to production testing.
 9. Switching characteristics are independent of operating junction temperatures.

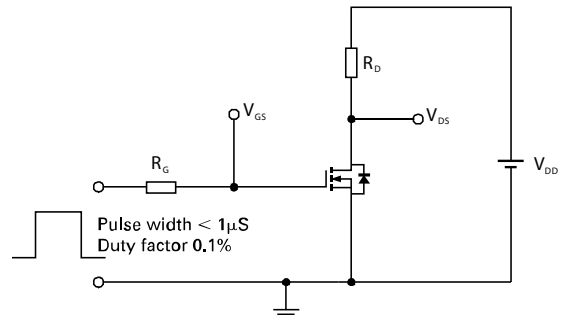
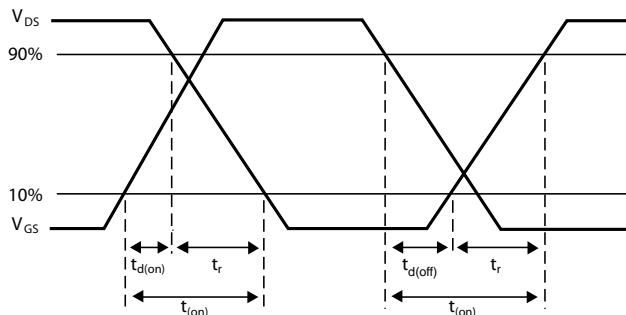
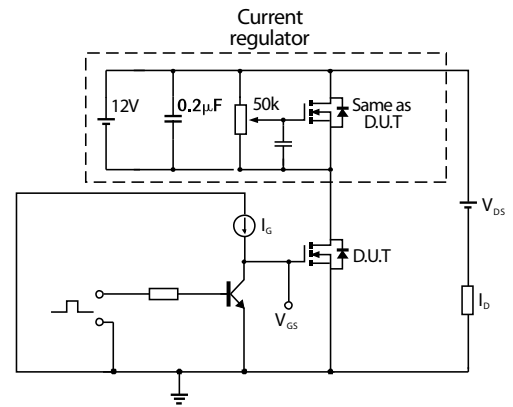
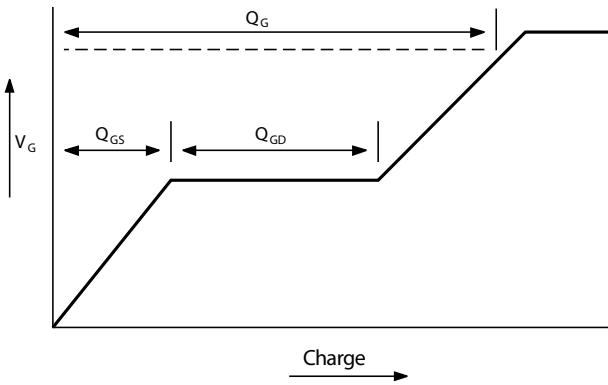
Typical Characteristics



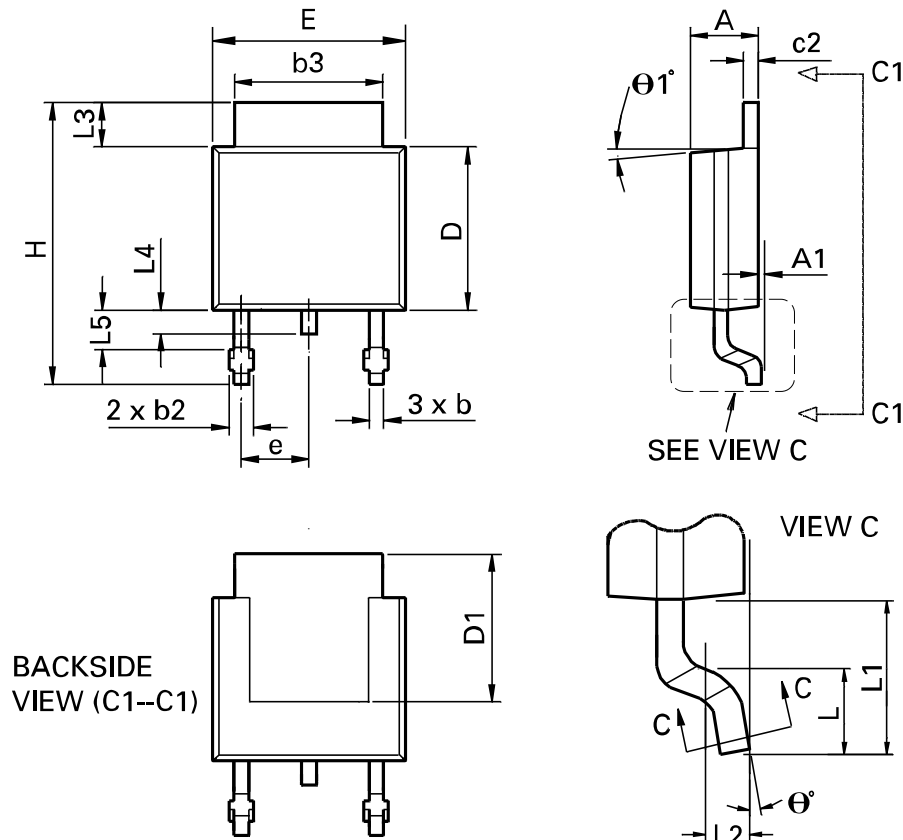
Typical Characteristics - continued



Test Circuits

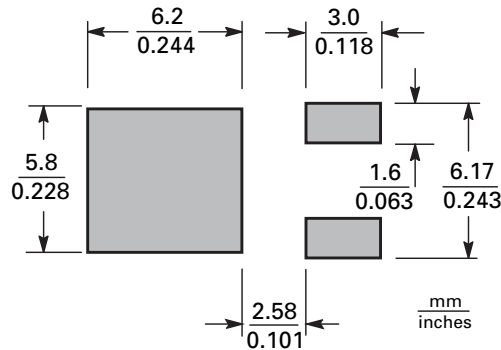


Package Outline Dimensions



DIM	Inches		Millimeters		DIM	Inches		Millimeters	
	Min	Max	Min	Max		Min	Max	Min	Max
A	0.086	0.094	2.18	2.39	e	0.090 BSC		2.29 BSC	
A1	-	0.005	-	0.127	H	0.370	0.410	9.40	10.41
b	0.020	0.035	0.508	0.89	L	0.055	0.070	1.40	1.78
b2	0.030	0.045	0.762	1.14	L1	0.108 REF		2.74 REF	
b3	0.205	0.215	5.21	5.46	L2	0.020 BSC		0.508 BSC	
c	0.018	0.024	0.457	0.61	L3	0.035	0.065	0.89	1.65
c2	0.018	0.023	0.457	0.584	L4	0.025	0.040	0.635	1.016
D	0.213	0.245	5.41	6.22	L5	0.045	0.060	1.14	1.52
D1	0.205	-	5.21	-	θ_1°	0°	10°	0°	10°
E	0.250	0.265	6.35	6.73	θ°	0°	15°	0°	15°
E1	0.170	-	4.32	-	-	-	-	-	-

Suggested Pad Layout



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