

$V_{DS}=30V$

$R_{DS(ON)}, V_{GS}@10V, I_{DS}@45A=6m\Omega$

$R_{DS(ON)}, V_{GS}@4.5V, I_{DS}@30A=10m\Omega$

FEATURES

Advanced trench process technology

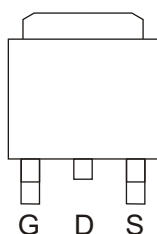
High Density Cell Design For Ultra Low On-Resistance

Specially Designed for DC/DC Converters and Motor Drivers

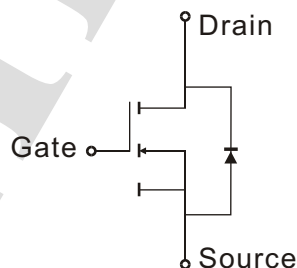
Fully Characterized Avalanche Voltage and Current

TO-252(D-PAK)

Top View



INTERNAL SCHEMATIC DIAGRAM



Absolute Maximum Ratings ($T_A=25^{\circ}C$ Unless Otherwise Noted)				
Parameter	Symbol	Limit	Unit	
Drain-Source Voltage	V_{DS}	30	V	
Gate-Source Voltage	V_{GS}	± 20		
Continuous Drain Current	I_D	60	A	
Pulsed Drain Current ¹⁾	I_{DM}	350		
Maximum Power Dissipation	P_D	$T_A=25^{\circ}C$	70	W
		$T_A=100^{\circ}C$	42	
Operating Junction Temperature	T_J	-55 to 150	$^{\circ}C$	
Storage Temperature Range	T_{stg}			
Avalanche Energy with Single Pulse $I_D = 50A, V_{DD} = 25V, L = 0.5mH$	E_{AS}	300	mJ	
Junction-to-Case Thermal Resistance	$R_{\theta JC}$	1.8	$^{\circ}C/W$	
Junction-to-Ambient Thermal Resistance (PCB mounted) ²⁾	$R_{\theta JA}$	40		

Note: 1. Maximum DC current limited by the package
2. 1-in² 2oz Cu PCB board

30V N-Channel Enhancement Mode MOSFET

Electrical Characteristics (T_J = 25°C Unless Specified)

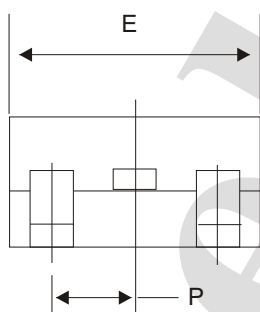
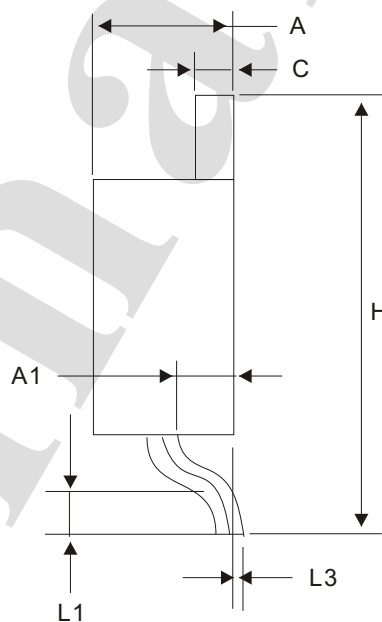
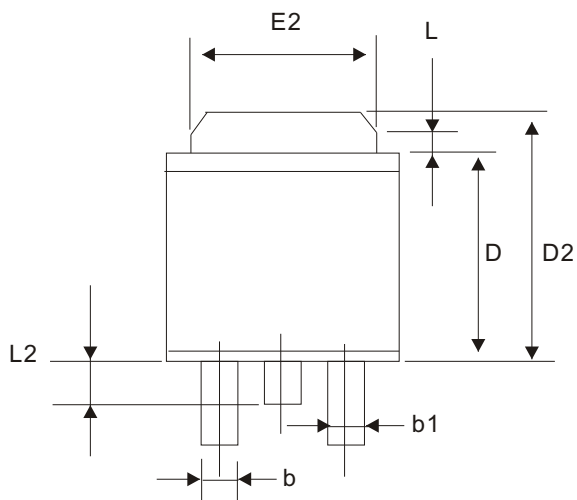
Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
STATIC						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} = 0V, I _D = 250 μA	25	-	-	V
R _{DS(ON)}	Drain-Source On-State Resistance	V _{GS} = 4.5V, I _D = 30A		7.5	9.0	mΩ
		V _{GS} = 10V, I _D = 30A		4.5	6.0	
V _{GS(th)}	Gate Threshold Voltage	V _{DS} = V _{GS} , I _D = 250 μA	1	1.6	3	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} = 25V, V _{GS} = 0V			1	μA
I _{GSS}	Gate-Body Leakage	V _{GS} = ±20V, V _{DS} = 0V			±100	nA
R _g	Gate Resistance			1		Ω
g _{fs}	Forward Transconductance	V _{DS} = 15V, I _D = 15A				S
DYNAMIC						
Q _g	Total Gate Charge			26		nC
Q _{gs}	Gate-Source Charge	V _{DS} = 15V, I _D = 25A, V _{GS} = 10V		6		
Q _{gd}	Gate-Drain Charge			5		
T _{d(on)}	Turn-On Delay Time	V _{DD} = 15V, R _L = 15 Ω I _D = 1A, V _{GEN} = 10V R _G = 6 Ω		17		ns
t _r	Turn-On Rise Time			3.5		
T _{d(off)}	Turn-Off Delay Time			40		
t _f	Turn-Off Fall Time			6		
C _{iss}	Input Capacitance	V _{DS} = 15V, V _{GS} = 0V f = 1.0 Mhz		2134		pF
C _{oss}	Output Capacitance			343		
C _{rss}	Reverse Transfer Capacitance			134		
SOURCE-DRAIN DIODE						
I _s	Max. Diode Forward Current				20	A
V _{sD}	Diode Forward Voltage	I _s = 20A, V _{GS} = 0V		0.85	1.2	V

Note: pulse test: pulse width ≤ 300us, duty cycle ≤ 2%

30V N-Channel Enhancement Mode MOSFET

Physical Dimensions inches(millimeters) unless otherwise noted

TO-252



SYMBOL	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	2.250	2.350	0.089	0.093
A1	0.950	1.050	0.037	0.041
C	0.490	0.530	0.019	0.021
E	6.400	6.600	0.252	0.260
E2	5.300	5.450	0.209	0.215
D	6.000	6.200	0.236	0.244
D2	7.100	7.300	0.280	0.287
H	9.700	10.100	0.382	0.398
L	0.600	Ref	0.024	Ref
L1	1.425	1.625	0.056	0.064
L2	0.650	0.850	0.026	0.033
L3	0.020	0.120	0.001	0.005
b	0.770	0.850	0.030	0.033
b1	0.840	0.940	0.033	0.037
P	2.290	BSC	0.090	BSC